

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
3 February 2005 (03.02.2005)

PCT

(10) International Publication Number
WO 2005/009496 A1

(51) International Patent Classification⁷: **A61L 27/14**,
27/54, 27/58

(21) International Application Number:
PCT/FI2004/050115

(22) International Filing Date: 30 July 2004 (30.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
20031120 31 July 2003 (31.07.2003) FI

(71) Applicant (for all designated States except US):
BIORETEC OY [FI/FI]; Hermiankatu 6-8 D, FIN-33720
Tampere (FI).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ASHAMMAKHI**,
Nureddin [FI/FI]; Vehkatie 20 A 8, FIN-01300 Vantaa
(FI). **TÖRMÄLÄ, Pertti** [FI/FI]; Saarenkärjenkuja 5, FIN-
33300 Tampere (FI).

(74) Agent: **TAMPEREEN PATENTTITOIMISTO OY**;
Hermiankatu 12 B, FIN-33720 Tampere (FI).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

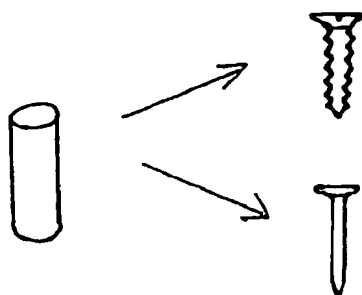
— as to the applicant's entitlement to claim the priority of the
earlier application (Rule 4.17(iii)) for all designations

Published:

— with international search report
— before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: **MULTIFUNCTIONAL IMPLANT DEVICE**



(57) Abstract: Bone fixation or augmentation in a mammalian body to enhance the me-
chanical strength of a fracture is provided by reinforcement fixing bone ends together
using the implant device. A resorbable device can be rendered anti-osteolytic by incorpo-
rating materials such as bisphosphonates. It can also be rendered osteoconductive by the
incorporation of an osteoconductive material such as bioactive glass or TCP. The implant
device has a matrix as one phase, where the matrix is made of a bioresorbable polymer.
One phase of the implant is made from self-reinforcing elements and the matrix contains
an antiosteolytic agent component. The implant contains further osteoconductive and/or
osteoconductive material.

WO 2005/009496 A1